

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

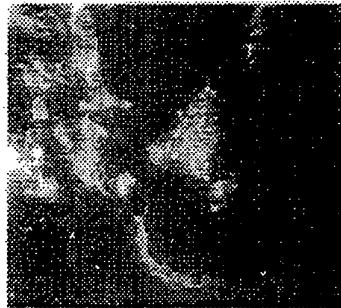
(51) International Patent Classification <sup>6</sup> :	A3	(11) International Publication Number:	WO 99/37337
A61L 27/00, 31/00		(43) International Publication Date:	29 July 1999 (29.07.99)
(21) International Application Number:	PCT/US99/01391		
(22) International Filing Date:	21 January 1999 (21.01.99)		
(30) Priority Data:	<p>09/014,087 27 January 1998 (27.01.98) US 09/186,810 5 November 1998 (05.11.98) US</p>		
(71) Applicant:	ST. JUDE MEDICAL, INC. [US/US]; One Lillehei Plaza, St. Paul, MN 55117 (US).		
(72) Inventors:	CARLYLE, Wenda, C.; 4534 Evergreen Drive, Vadnais Heights, MN 55127 (US). KELLY, Sheila, J.; 1051 Pondview Court, Vadnais Heights, MN 55127 (US). OGLE, Matthew, F.; 2053 Juliet Avenue, St. Paul, MN 55105 (US).		
(74) Agents:	DARDI, Peter, S.; Westman, Champlin & Kelly, P.A., International Centre, Suite 1600, 900 Second Avenue South, Minneapolis, MN 55402-3319 (US) et al.		
(81) Designated States:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TI, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).		
<p>Published <i>With international search report.</i></p>			
(88) Date of publication of the international search report:	30 September 1999 (30.09.99)		

(54) Title: PROSTHESES WITH ASSOCIATED GROWTH FACTORS

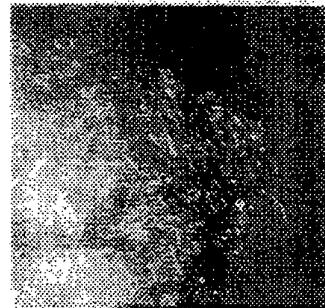
A



B



C



(57) Abstract

A polypeptide growth factor is associated with a substrate to promote population of the substrate with endothelial cells. A prosthesis is formed with growth factor crosslinked to the substrate. Preferred polypeptide growth factors include VEGF. VEGF treated tissue can be populated with endothelial cells *in vitro* and/or *in vivo*. In an alternative approach, VEGF can be associated with the substrate by direct contact with a VEGF solution, application of the VEGF with an adhesive as a coating to the substrate, or chemical binding of the VEGF to the substrate with or without an intervening linker molecule. In one preferred approach, the growth factor is associated with the substrate by crosslinking under suitably mild conditions such that the growth factor is active following the crosslinking process.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 99/01391

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 A61L27/00 A61L31/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 742 020 A (NICEM LTD) 13 November 1996 (1996-11-13)  column 4, line 11 - line 31 column 6, line 4 - column 7, line 47 column 8, line 34 - line 46 claims 1-18 ----  WO 86 00526 A (CAPLAN ARNOLD I;SYFTESTAD GLENN T) 30 January 1986 (1986-01-30)  page 3, line 1 - line 14 -----	1-6, 9-13, 16-24, 28-33, 35-38, 43-47
X		1,2,5,6, 11,16, 21, 28-31, 37,38, 43-47

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 July 1999

Date of mailing of the international search report

28/07/1999

Name and mailing address of the ISA

Europena Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Heck, G

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/US 99/01391

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
EP 0742020 A	13-11-1996	JP 8294530 A CN 1142974 A		12-11-1996 19-02-1997
WO 8600526 A	30-01-1986	US 4620327 A AU 4601485 A EP 0188552 A		04-11-1986 10-02-1986 30-07-1986